STIC Search Report
EIC 2800

STIC Database Tracking Number: 209626

TO: Oxana Maslova
Location: JEF 6C31
Art Unit : 2859
Thursday, December 07, 2006

Case Serial Number: 10/530365

From: Michael Obinna
Location: EIC 2800
JEF4B68
Phone: 272-2663

michael.obinna@uspto.gov

Search Notes

RE: **Temperature sensing element and method of manufacturing the element and nanothermometer**

Examiner Maslova,

Attached are edited search results from the patent and non-patent databases.

The tagged items are some of the results worth your review.

I recommend that you browse all the results.

If you would like more searching on this case, or if you have questions or comments, please let me know.

Respectfully,

Michael Obinna

sira
Search and Information Resources Administration

STIC Search Results Feedback Form

EIC 2800

Questions about the scope or the results of the search? Contact ***the EIC searcher or contact***:

Jeff Harrison, EIC 2800 Team Leader
571-272-2511, JEF 4B68

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 2810*
- *Relevant prior art **found**, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

  Types of relevant prior art found:
  - ☐ Foreign Patent(s)
  - ☐ Non-Patent Literature
    (journal articles, conference proceedings, new product announcements etc.)
- *Relevant prior art **not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to STIC/EIC2800, CP4-9C18

sira
Search and Information Resources Administration

209626

SEARCH REQUEST FORM **Scientific and Technical Information Center - EIC2800**

Rev. 1/26/2006 This is an experimental format -- Please give suggestions or comments to Jeff Harrison, JEF-4B68, 22511.

Date 12/6/06 Serial # 10530365 Priority Application Date 12/4/02

Your Name Maslova Oxana Examiner # 82328

AU 2859 Phone 26532 Room 6C31

In what format would you like your results? Paper is the default. PAPER DISK EMAIL

If submitting more than one search request form, please prioritize the searches in order of need.

Where have you searched so far on this case?

Circle: USPT DWPI EPO Abs JPO Abs IBM TDB

Other: ______

What relevant art have you found so far? Please attach citations or Information Disclosure Statements.

What types of references would you like? Please checkmark:

Primary Refs ____ Nonpatent Literature ____ Teaching Refs ____

Secondary Refs ____ Foreign Patents ____ Other ____

Is this a "Fast & Focused Search" request? (Circle One) YES NO

A "Fast & Focused Search" is completed in 2-3 hours (maximum). The search must be on a very specific topic and meet certain criteria. The criteria are posted in EIC2800 and on the STIC NPL Web Page at http://uspto-a-pattr-2/siraapps/stic/npl/nplsearch.htm

DEC 6 2006

What is the topic, such as the novelty, motivation, utility, or other specific facets defining the desired focus of this search? Please include the concepts, synonyms, keywords, acronyms, registry numbers, definitions, structures, strategies, and anything else that helps to describe the topic. Please attach a copy of the abstract and pertinent claims.

thermometer with indium

why indium better than gallium

Staff Use Only

Searcher: Michael Okwuza

Searcher Phone: 571-272-2663

Searcher Location: STIC-EIC2800, JEF-4B68

Date Searcher Picked Up: 11/6/2006

Date Completed: 11/6/2006

Searcher Prep/Rev Time: ______

Online Time: ______

Type of Search

Structure (#) ✓

Bibliographic ✓

Litigation ______

Fulltext ______

Patent Family ______

Other ______

Vendors

STN ✓

Dialog ✓

Questel/Orbit ______

Lexis-Nexis ______

WWW/Internet ______

Other ______

```
(FILE 'HOME' ENTERED AT 16:26:07 ON 06 DEC 2006)

     FILE 'CAPLUS' ENTERED AT 16:26:21 ON 06 DEC 2006
L1        467497 SEA ABB=ON  PLU=ON  (TEMPERATURE OR THERM######### OR HEAT#####
                 ###)(3A)(ELEMENT OR MATERIAL OR SUBSTAN###### OR THERMOMETER
                 OR SENS###### OR DETECT####)OR THERMOMETER OR TEC OR TCE OR TE
                 OR NANOTHERM###### OR NANO THERM
L2        206836 SEA ABB=ON  PLU=ON  INDIUM OR IN
L3        185161 SEA ABB=ON  PLU=ON  (PRECIS###### OR OPTIM##### OR ACCURA######
                 )(3A)(MEASUR######### OR SENS###### OR DETECT###### OR
                 DETERMIN#######)
L4       1862035 SEA ABB=ON  PLU=ON  GA OR GALLIUM
L5            57 SEA ABB=ON  PLU=ON  L1 AND L2 AND L3 AND L4
L6           962 SEA ABB=ON  PLU=ON  L1(3A)L3
L7            22 SEA ABB=ON  PLU=ON  L6 AND L2
L8            15 SEA ABB=ON  PLU=ON  L7 AND L4
L9           431 SEA ABB=ON  PLU=ON  L1(3A)L2
L10           10 SEA ABB=ON  PLU=ON  L9 AND L3
L11           10 DUP REM L10 (0 DUPLICATES REMOVED)
L12            5 SEA ABB=ON  PLU=ON  L10 AND L4
     FILE 'CAPLUS' ENTERED AT 16:42:07 ON 06 DEC 2006
L13           10 SEA L11
L14            5 SEA ABB=ON  PLU=ON  L13 NOT L12
                 D L14 IBIB ABS 1-5
L15           10 SEA L11
L16           15 SEA ABB=ON  PLU=ON  L8 NOT (L15 OR L12)
                 D L16 IBIB ABS 1-15
L17           10 SEA L11
L18            6 SEA ABB=ON  PLU=ON  L7 NOT (L17 OR L12 OR L8)
                 D L18 IBIB ABS 1-6
FILE 'STNGUIDE' ENTERED AT 16:44:32 ON 06 DEC 2006
```

L12 ANSWER 3 OF 5 CAPLUS

ACCESSION NUMBER: 1999:814154 CAPLUS
DOCUMENT NUMBER: 132:42616
TITLE: Temperature sensors and optical semiconductor components
INVENTOR(S): Sakakibara, Katsutoshi; Toyota, Hirotaka; Sanbe, Yoshihiro; Miura, Akira; Akasaka, Kyoichi; Fujita, Tadashige
PATENT ASSIGNEE(S): Yokogawa Electric Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11354829	A2	19991224	JP 1998-159008	19980608

PRIORITY APPLN. INFO.: JP 1998-159008 19980608

AB The invention refers to an optical semiconductor component wherein a temperature sensor is fixed on the substrate immediately below the photodiode in order to increase the ***accuracy*** of the temperature ***measurements***.

ACCESSION NUMBER: 1971:66034 CAPLUS
DOCUMENT NUMBER: 74:66034
TITLE: Sensing element of a resistance thermometer
INVENTOR(S): Dutchak, Ya. I.; Kyuzdeni, O. A.; Lakh, V. I.; Prokhorenko, V. Ya.; Stadnyk, B. I.
SOURCE: U.S.S.R. From: Otkrytiya, Izobret., Prom. Obraztsy, Tovarnye Znaki 1970, 47(26), 117.
CODEN: URXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Russian
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
SU 279108		19700821	SU	19681128

AB The sensing element of a resistance thermometer consisted of a metal melt. To broaden the range and increase the **accuracy** of the **measurement**, the melt consisted of a In-**Ga**-Sn eutectic, containing 25, 62, and 13 weight % of the resp. elements.

L16 ANSWER 10 OF 15 CAPLUS

ACCESSION NUMBER: 1999:114946 CAPLUS
DOCUMENT NUMBER: 130:217192
TITLE: In_2O_3-based ***gas*** sensor with low humidity dependence
AUTHOR(S): Fukui, K.; Nishida, S.
CORPORATE SOURCE: New Cosmos Electric Co., Ltd., Osaka, 532-0036, Japan
SOURCE: Chemical Sensors (1998), 14(Suppl. B), 113-116
CODEN: KAGSEU
PUBLISHER: Denki Kagakkai Kagaku Sensa Kenkyukai
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

AB The powder of the In oxide semiconductor was prepared by calcination (600° for 4 h) of $In(OH)_3$ (the purity of 99.99%). The conductivity of the In_2O_3 semiconductor was controlled by doping with Sn^{4+} or Ge^{1+}. The In oxide was distributed on sphere (0.50 mm ϕ) to cover a Pt wire (0.020 nm ϕ) coil, following by being sintered (600° for 12 h) by the coil heating. The ***gas*** sensor was operated by a bridge circuit. An ***optimum sensor temp***. was .apprx.430° (.apprx.160 mW). An extremely low humidity dependence was obtained as compared to a conventional SnO_2-based sensor. Further, a prominent long term stability was also ascertained, and a possibility of reliable detection at a low ***gas*** concentration was obtained.

L18 ANSWER 6 OF 6 CAPLUS

ACCESSION NUMBER: 1967:467869 CAPLUS
DOCUMENT NUMBER: 67:67869
TITLE: Constant points of cadmium, tin, and ***indium***
AUTHOR(S): Alieva, F. E.
SOURCE: Trudy Institutov Gosudarstvennogo Komiteta Standartov, Mer i Izmeritel'nykh Priborov S.S.S.R. (1966), No. 87, 29-31
CODEN: TSIPAE
DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB The apparatus needed for reproducing constant points of the International Practical Temperature Scale above 100° can be simplified by using the constant points based on the phase equilibrium between the liquid and solid phases of a metal. The f.p. of In (156°), which is close to the b.p. of H2O, is sufficiently stable and little affected by pressure. The f. ps. of Sn (231°) and Cd(321°) have the same characteristics. A special apparatus was constructed for the study of the constant points of pure In, Sn, and Cd. The temperature was measured by three 25-ohm Pt ***thermometers*** and the ***measurement*** was ***accurate*** within ±0.0002° for In, and ±0.0003° for Sn and Cd.

12/6/2006 5:06:44 PM
12/6/2006 5:30:35 PM

[File 2] INSPEC 1898-2006/Jan W2
[File 6] NTIS 1964-2006/Jan W4
[File 8] Ei Compendex(R) 1970-2006/Jan W4
[File 34] SciSearch(R) Cited Ref Sci 1990-2006/Jan W4
[File 434] SciSearch(R) Cited Ref Sci 1974-1989/Dec
[File 35] Dissertation Abs Online 1861-2006/Jan
[File 65] Inside Conferences 1993-2006/Jan W5
[File 94] JICST-EPlus 1985-2006/Nov W3
[File 99] Wilson Appl. Sci & Tech Abs 1983-2006/Apr
[File 144] Pascal 1973-2006/Jan W2
[File 23] CSA Technology Research Database 1963-2006/Jan
[File 103] Energy SciTec 1974-2006/Jan B1
[File 31] World Surface Coatings Abs 1976-2006/Jan
[File 95] TEME-Technology & Management 1989-2006/Jan W5
[File 68] Solid State & Superconductivity Abstracts 1966-2006/Jan
[File 60] ANTE: Abstracts in New Tech & Engineer 1966-2006/Jan
[File 293] Engineered Materials Abstracts 1966-2006/Jan
[File 239] Mathsci 1940-2005/Feb
[File 256] TECINFOSOURCE 82-2005/DEC

Set	Items	Description
S1	1160847	S (TEMPERATURE OR THERMAL???? OR HEAT???? OR TEMP OR TEMPS)(2N)(ELEMENT???? OR MATERIAL???? OR SUBSTAN????? OR OBJECT OR THERMOMETER OR SENS?????? OR DETECT???? OR MONITOR???? OR CONTROL????) OR TEC OR T()E()C OR TE OR T()E OR THERMOMETER OR NANOTHERM?????? OR NANO()THERM??????? OR MICROTHERM????? OR MICRO()THERM??????
S2	405349	S INDIUM
S3	7540569	S ENVIRONMENT???? OR CLIMAT??? OR HUMID???? OR AMBIEN???? OR SURROUND????? OR ATMOSPHER????
S4	803638	S (PRECIS?????? OR OPTIM?????? OR ACCURA???????)(3N)(MEASUR?????? OR SENS???? OR DETECT?????? OR DETERMIN?????????)
S5	30	S S1 AND S2 AND S3 AND S4
S6	20	RD (unique items)
S7	11	S S6 AND PY<=2002
S8	1068	S S1(3N)S2
S9	1	S S8(3N)S4
S10	16	S S8 AND S4
S11	12	RD (unique items)
S12	10	S S11 AND PY<=2002
S13	3219	S S1(3N)S4
S14	38	S S13 AND S2
S15	23	RD (unique items)
S16	12	S S15 AND PY<=2002
S17	35327	S S1(3N)S3
S18	25	S S17(3N)S2
S19	23	RD (unique items)
S20	21	S S19 AND PY<=2002
S21	0	S S20 AND S4
S22	1	S S9 NOT S7
S23	8	S S12 NOT (S7 OR S9)
S24	10	S S16 NOT (S7 OR S9 OR S12)
S25	21	S S20 NOT (S7 OR S9 OR S12 OR S16)

7/9/1 (Item 1 from file: 2) **Links**
INSPEC

08374177 **INSPEC Abstract Number**: A2002-20-0725-002, B2002-10-7230-031
Title: Development of a novel humidity sensor with error-compensated measurement system
Author Arshak, K.; Twomey, K.; Heffernan, D.
Author Affiliation: Microelectron. & Semicond. Res. Group, Limerick Univ., Ireland
Conference Title: 2002 23rd International Conference on Microelectronics. Proceedings (Cat. No.02TH8595) **Part** vol.1 p. 215-18 vol.1
Publisher: IEEE , Piscataway, NJ, USA
Publication Date: 2002 **Country of Publication**: USA 2 vol.xxi+794 pp.
ISBN: 0 7803 7235 2 **Material Identity Number**: XX-2002-01288
U.S. Copyright Clearance Center Code: 0-7803-7235-2/02/$10.00
Conference Title: Proceedings of 23rd International Conference on Microelectronics (MIEL 2002)
Conference Sponsor: IEEE Electron Devices Soc.; IEEE-Solid-State Circuits Soc
Conference Date: 12-15 May 2002 **Conference Location**: Nis, Yugoslavia
Medium: Also available on CD-ROM in PDF format

Language: English **Document Type**: Conference Paper (PA)
Treatment: Applications (A); Practical (P); Theoretical (T); Experimental (X)
Abstract: This paper documents the creation of a complete PC-based **humidity** sensing system, implemented using LabVIEW from National Instruments. The **humidity** sensor, which has a measured sensitivity of 0.25%/RH%, is manufactured by thin film technology from a novel combination of **SiO/In/sub 2/O/sub 3/**. Both the **humidity** sensor and a standard **temperature sensor** are interfaced to a PC using a front-end signal conditioning circuit. The entire system has been analyzed mathematically and the necessary algorithms for error-compensation have been developed. The resulting **measurement** system is efficient, **accurate** and flexible. (7 Refs)
Subfile: A B
Descriptors: computerised instrumentation; error compensation; **humidity** sensors; indium compounds; semiconductor materials; silicon compounds
Identifiers: **humidity** sensor; error-compensated measurement system; PC-based **humidity** sensing system; LabVIEW; thin film technology; SiO/In/sub 2/O/sub 3/; front-end signal conditioning circuit; SiO-In/sub 2/O/sub 3/
Class Codes: A0725 (Hygrometry); A0670D (Sensing and detecting devices); A0650M (Computing devices and techniques); B7230 (Sensing devices and transducers) ; B7320X (Humidity measurement); B7210B (Computerised instrumentation)
Chemical Indexing:
SiOIn2O3 ss - In2 ss - In ss - O3 ss - Si ss - O ss (Elements - 3)

7/9/5 (Item 1 from file: 8) **Links**
Fulltext available through: USPTO Full Text Retrieval Options SCIENCEDIRECT
Ei Compendex(R)

10196201 **E.I. No**: EIP04538761699
Title: Thermal conductivity of liquid tin and indium

Author: Peralta-Martinez, M.V.; Wakeham, W.A.
Corporate Source: Department of Chemical Engineering Imp. Coll. of Sci., Technol./Med., London SW7 2BY, United Kingdom
Source: International Journal of Thermophysics v 22 n 2 March 2001. p 395-403
Publication Year: 2001
CODEN: IJTHDY **ISSN**: 0195-928X
Language: English
Document Type: JA; (Journal Article) **Treatment**: X; (Experimental)
Journal Announcement: 0501W2
Abstract: The present paper reports new measurements of the thermal conductivity of liquid tin and **indium**. The measurements have been performed at **atmospheric** pressure in a range of temperatures from 450 to 750 K using a new experimental method based on the principle of the transient hot wire technique. The particular version of the technique employed for molten metals has been shown to have an **accuracy** in the **measurement** of the thermal conductivity of molten metals of +2%. Ultimately, it is intended that the technique operate in a wide range of temperatures, from **ambient** up to 1200 K, and work is in progress to increase the working temperature and to extend the range of measurements. The results are compared with experimental data reported in the literature by other authors and with predictions of the Wiedemann and Franz law. 25 Refs.
Descriptors: *Tin; **Indium**; **Thermal conductivity**; Molten **materials**; **Thermal** effects; Data reduction; Finite element method; Error analysis; Mercury (metal); Gallium; Heat transfer
Identifiers: Transient hot wire; Liquid tin; Molten mercury; Heat transfer fluids
Classification Codes:
546.2 (Tin & Alloys); 549.3 (Others, incl. Bismuth, Boron, Cadmium, Cobalt, Mercury, Niobium, Selenium, Silicon, Tellurium); 641.1 (Thermodynamics); 931.2 (Physical Properties of Gases, Liquids & Solids); 723.2 (Data Processing); 921.6 (Numerical Methods); 641.2 (Heat Transfer)
546 (Lead, Tin, Zinc, Antimony & Alloys); 549 (Nonferrous Metals & Alloys); 641 (Heat & Mass Transfer; Thermodynamics); 931 (Applied Physics Generally); 723 (Computer Software, Data Handling & Applications); 921 (Applied Mathematics)
54 (METALLURGICAL ENGINEERING, METAL GROUPS); 64 (HEAT & THERMODYNAMICS); 93 (ENGINEERING PHYSICS); 72 (COMPUTERS & DATA PROCESSING); 92 (ENGINEERING MATHEMATICS)

7/9/6 (Item 1 from file: 35) **Links**
Dissertation Abs Online

01796186 ORDER NO: AADAA-I9932191
INVESTIGATION OF INASSB MATERIAL SYSTEM FOR UNCOOLED LONG-WAVELENGTH INFRARED PHOTODETECTOR APPLICATIONS (INDIUM ARSENIDE ANTIMONIDE, SEMICONDUCTOR, CHEMICAL VAPOR DEPOSITION)

Author: KIM, JEDON
Degree: PH.D.
Year: 1999
Corporate Source/Institution: NORTHWESTERN UNIVERSITY (0163)
Director: MANIJEH RAZEGHI
Source: Volume 6006B of Dissertations Abstracts International.
PAGE 2855 . 229 PAGES
Descriptors: ENGINEERING, ELECTRONICS AND ELECTRICAL ; ENGINEERING, MATERIALS SCIENCE
Descriptor Codes: 0544; 0794

Infrared detectors operating in the 8 to 14 μm **atmospheric** window are of great importance in various military, industrial, and civilian applications. Minimization of cooling requirements is also another important factor because cooling equipment add considerable amount to the system cost. To achieve infrared **detection** at high **temperature, thermal detectors** have been developed and are currently in use. However, their detectivity is low especially at high frequencies. To achieve high sensitivity and fast response, photon detectors based on semiconductors have been studied. Early research effort has been carried out on the pre-established material system, mercury cadmium telluride (HgCdTe). However, HgCdTe suffers from various lattice, surface, and interface instability problems caused by weak ionic bonding and high Hg vapor pressure.

As an alternative, InAsSb alloys have been investigated in this study because it can cover the 8 to 14 μm range at room temperature. Being a III–V compound, InAsSb benefits from superior bond strengths and material stability, well-behaved dopants, and high quality substrates. Thus, InAsSb is a good candidate for the uncooled photodetector applications. The difficulties in growth have been overcome by advanced growth technology, metalorganic chemical vapor deposition (MOCVD). The material characteristics have been studied in detail. Device modeling was also performed in both analytical and numerical ways to **optimize** the **detector** structures. Both photoconductive and photovoltaic detectors were demonstrated on GaAs substrates. The first room temperature photoresponse up to 13 μm by any III–V semiconductors were obtained from these detectors with John noise limited detectivity of <math> <f> ∼<hsp sp="-0.167"><hsp sp="-0.167"><hsp sp="-0.167"><hsp sp="0.167"> 3×10⁷</f> </math> cmHz<super>1/2</super>/W. These results showed the feasibility of InAsSb photodetectors to replace the current thermal and HgCdTe uncooled detectors.

In summary, InAsSb is an excellent candidate to replace the current material systems used for uncooled infrared detectors. The first uncooled InAsSb photodetectors operating up to 13 μm have been demonstrated. Thus the results of these experiments will have direct technological importance by providing the experimental growth, characterization, device modeling, and device fabrication guidelines as well as a basic understanding of detector performance for the InAsSb material system.

7/9/7 (Item 1 from file: 23) **Links**
CSA Technology Research Database

0005498740 IP Accession No: 200108-B2-P-0475
Factors affecting the accuracy of TMA measurements

Foreman, J; Kelsey, M; Widmann, G Mettler-Toledo
Pages: 181-196
Publication Date: **2000**
Publisher: ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, USA

Conference:
Limitations of Test Methods for Plastics , Norfolk, VA , USA , 1 Nov. 1998

Document Type: Conference Paper
Record Type: Abstract
Language: English
ISBN: 0-8031-2850-9
Numbers: STP 1369
Notes: Numerical Data; Graphs; 6 ref., Numerical Data, Graphs
No. Of Refs.: 6
File Segment: Engineering Materials Abstracts

Abstract:
This study investigates factors that cause differences between reported temperatures in thermomechanical analysis (TMA) instruments and actual sample temperatures. Observations of the melting of **indium** are made under several sets of conditions. These include varying the **indium** specimen size, altering the position of the **thermal sensor**, changing the **heating** rate, and placing pieces of **indium** atop and below glass and copper specimens of varying thickness. A TMA instrument with direct- contact **thermal sensor** and single differential thermal analysis capability yields better sample temperature measurements and allows direct examination of the effects of heat capacity. In a second set of experiments, the glass transition of polycarbonate film is measured in the tension mode using different forces and specimen lengths. The results of this study show that low **material thermal** conductivity and high specimen heat capacity cause the sample temperature to be lower than that of the **surrounding atmosphere**. Temperature gradients along the length of the furnace can intensify the temperature difference. Furthermore, stress applied to specimens in tension can lead to erroneous Tg values. Specimen and calibration procedural changes are recommended.

Descriptors: Conference paper; Polycarbonates; Thermal properties; Glass transition temperature; Thermal analysis; Dimensional measurements; Heating rate; Temperature gradient; Temperature measurement; Calibration
Subj Catg: B2, Testing and Quality Control

7/9/11 (Item 1 from file: 95) **Links**
Fulltext available through: USPTO Full Text Retrieval Options
SCIENCEDIRECT
TEME-Technology & Management

01674899 20020905232
DC-operated InSb radiation thermometer for precision measurement of near room temperatures

(Gleichstrombetriebenes InSb-Strahlungsthermometer zur genauen Messung im Raumtemperaturbereich)
Ishii, J; Kobayashi, M; Sakuma, F; Ono, A
Nat. Res. Lab. of Metrology (NRLM), Tsukuba, J
AIST Bulletin of Metrology, v1, n1, pp91 - 97 , **2002**
Document type: journal article **Language**: English
Record type: Abstract
ISSN: 1347-1473

Abstract:
A **thermal** infrared radiation **thermometer** operated in the dc mode was developed for **precise** temperature **measurement** from 30 deg C to 100 deg C. The radiation **thermometer** consists of an InSb photovoltaic detector and a simple optical system without a mechanical chopper. The drift of output offset with varying **ambient** temperature was decreased to a minimum level by suppressing background radiation leaving room temperature optical components of the radiation **thermometer**. The noise-equivalent temperature difference for an integration time of one second was estimated to be smaller than 1 mK at a room temperature radiance level. The mid-term stability for two hours was 5 mK in standard deviation for room temperature observation in the **ambient** temperature varying by 2 K. The change of output signal observing a blackbody kept at 50 deg C corresponded a blackbody temperature change of 0.37 K when the **ambient** temperature changed by 10 K.

Descriptors: TEMPERATURE MEASUREMENT; ROOM TEMPERATURE; PYROMETERS; **INDIUM** ANTIMONIDE; PHOTOVOLTAIC EFFECT
Identifiers: Raumtemperaturmessung; Strahlungsthermometer

23/9/8 (Item 3 from file: 23) **Links**
CSA Technology Research Database

0001871608 IP Accession No: 0037257
Ultrasonic Velocity in Metallic Melts in a Wide Temperature Range

Pashuk, E G; Pashaev, B P
HIGH TEMP. , v 18 , n 2 , p 256-260 , 1980
Publication Date: 1980

Document Type: Journal Article
Record Type: Abstract
Language: English
File Segment: Solid State & Superconductivity Abstracts

Abstract:
A semiautomatic device for measuring ultrasonic velocity in metallic melts in the temperature range from room to 1000 degree K is described. The **accuracy** of the absolute **measurements** is plus or minus 0.15%. The use of the "phase comparison method" made it possible to achieve a sensitivity of 5 multiplied by 10 super(-5). Results of control measurements in liquid indium and bismuth are presented.

Descriptors: Ultrasonic velocity; Metallic melts; **Control** measurements; **Temperature**; Measurements; Liquids; **Indium**; Bismuth
Subj Catg: S SSP3.3, ACOUSTIC WAVES

12/7/2006 10:40:13 AM
12/7/2006 10:59:31 AM

[File 344] Chinese Patents Abs Jan 1985-2006/Jan
[File 347] JAPIO Nov 1976-2005/Sep(Updated 060103)
[File 350] Derwent WPIX 1963-2006/UD,UM &UP=200607
[File 371] French Patents 1961-2002/BOPI 200209

Set	Items	Description
S1	780149	S (TEMPERATURE OR THERMAL???? OR HEAT???? OR TEMP OR TEMPS)(2N)(ELEMENT???? OR MATERIAL???? OR SUBSTAN????? OR OBJECT OR THERMOMETER OR SENS?????? OR DETECT???? OR MONITOR???? OR CONTROL????) OR TEC OR T()E()C OR TE OR T()E OR THERMOMETER OR NANOTHERM?????? OR NANO()THERM??????? OR MICROTHERM????? OR MICRO()THERM??????
S2	43897	S INDIUM
S3	1348931	S ENVIRONMENT???? OR CLIMAT??? OR HUMID???? OR AMBIEN???? OR SURROUND????? OR ATMOSPHER????
S4	294655	S (PRECIS?????? OR OPTIM?????? OR ACCURA???????)(3N)(MEASUR?????? OR SENS???? OR DETECT?????? OR DETERMIN?????????)
S5	5591	S IC=(B82B-001/00 OR B82B-003/00 OR G01K-005/00 OR G01K-005/02 OR G01K-009/00)
S6	1868	S MC=(S03-B01D OR U12-B03F2A)
S7	9	S S1 AND S2 AND S3 AND S4
S8	109	S S1(3N)S2
S9	2	S S8 AND S4
S10	23018	S S1(3N)S3
S11	61	S S10 AND S2
S12	2	S S11 AND S4
S13	17	S S8 AND S3
S14	4922	S S1(3N)S4
S15	2	S S13 AND S5
S16	1	S S13 AND S6
S17	1	S S11 AND S5
S18	1	S S11 AND S6
S19	8	S S14 AND S2
S20	707	S S14 AND S3
S21	2	S S20 AND S2
S22	1	S S9 NOT S7
S23	0	S S12 NOT (S7 OR S9)
S24	1	S S15 NOT (S7 OR S9 OR S12)
S25	0	S S16 NOT (S7 OR S9 OR S12 OR S15)
S26	0	S S17 NOT (S7 OR S9 OR S12 OR S15 OR S16)
S27	0	S S18 NOT (S7 OR S9 OR S12 OR S15 OR S16 OR S17)
S28	5	S S19 NOT (S7 OR S9 OR S12 OR S15 OR S16 OR S17 OR S18)
S29	0	S S21 NOT (S7 OR S9 OR S12 OR S15 OR S16 OR S17 OR S18 OR S19)
S30	15	S S13 NOT (S7 OR S9 OR S12 OR S15 OR S16 OR S17 OR S18 OR S19 OR S21)

7/9/6 (Item 6 from file: 350) **Links**
Derwent WPIX

0009244883
WPI Acc no: 1999-172350/199915
XRAM Acc no: C1999-050333
XRPX Acc No: N1999-126373
Thermal fuse for detecting abnormal heat generation in vehicular wire harness - has an indium -tin@ fuse element
Patent Assignee: YAZAKI CORP (YAZA)
Inventor: ENDO R; ENDO T; HORIBE K; ISHII T

Patent Family (3 patents, 3 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
JP 11025829	A	19990129	JP 1997179536	A	19970704	199915	B
DE 19829662	A1	19990415	DE 19829662	A	19980703	199921	E
US 6222438	B1	20010424	US 1998109047	A	19980702	200125	E

Alerting Abstract JP A
NOVELTY - A fuse element (21) made of an alloy containing 52-100 wt% of **indium**, and the remainder of tin.
USE - For **detecting** abnormal **temperature** rise in vehicular wire harness.
ADVANTAGE - Deterioration of wire harness due to short circuit is prevented. The abnormal generation of **heat** is **detected accurately**.
ADVANTAGE - DESCRIPTION OF DRAWING(S) - The figure illustrates sectional view of thermal fuse. (21) Fuse element.

Documentation Abstract
NOVELTY - A fuse element (21) made of an alloy containing 52-100 wt% of **indium**, and the remainder of tin.
USE - For **detecting** abnormal **temperature** rise in vehicular wire harness.
ADVANTAGE - Deterioration of wire harness due to short circuit is prevented. The abnormal generation of **heat** is **detected accurately**.
DESCRIPTION OF DRAWING(S) - The figure illustrates sectional view of thermal fuse.
(21) Fuse element

Title Terms /Index Terms/Additional Words: THERMAL; FUSE; DETECT ; ABNORMAL; HEAT; GENERATE; VEHICLE; WIRE; HARNESS; **INDIUM**; TIN; ELEMENT

Claim:

1. A temperature fuse, comprising:
   - a fuse element which is melted when the ambient temperature exceeds a certain temperature, the fuse element being made of an alloy consisting essentially of 52-100 wt.% indium and the balance tin.

22/9/1 (Item 1 from file: 350) **Links**
Derwent WPIX

0014706259 *Drawing available*
WPI Acc no: 2005-053867/
XRPX Acc No: N2005-047270
Radiation thermometer has indium gallium arsenide infrared detecting elements to set specific range for mutually different measurement wavelength of two colors of light from measuring object
Patent Assignee: CHINO CORP (CHIW)

Patent Family (1 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
JP 2005003437	A	20050106	JP 2003165129	A	20030610	200506	B

Alerting Abstract JP A
NOVELTY - The indium gallium arsenide (InGaAs) infrared detecting elements (51,52) set mutually different measurement wavelength of two colors of light from a measuring object (1), to 1.1-1.3 mum and 1.45-1.7 mum respectively.
USE - For measuring temperature of measurement object.
ADVANTAGE - The radiation temperature of **measuring** object is **measured accurately** and stably.
DESCRIPTION OF DRAWINGS - The figure shows the explanatory diagram of radiation thermometer. (Drawing includes non-English language text).
1 measuring object
2 objective lens
7 multiplexer
51,52 InGaAs infrared detecting elements

Title Terms /Index Terms/Additional Words: RADIATE; THERMOMETER; INDIUM; GALLIUM; ARSENIDE; INFRARED; DETECT; ELEMENT; SET; SPECIFIC; RANGE; MUTUAL; MEASURE; WAVELENGTH; TWO; COLOUR; LIGHT; OBJECT

28/9/2 (Item 2 from file: 347) **Links**
JAPIO

07137916 **Image available**
LIQUID CRYSTAL DISPLAY MODULE

Pub. No.: 2002-006288 [JP 2002006288 A]
Published: January 09, 2002 (20020109)
Inventor: YODA KENTARO
Applicant: SEIKO EPSON CORP
Application No.: 2000-186737 [JP 2000186737]
Filed: June 21, 2000 (20000621)
International Class: G02F-001/133; G02F-001/1333; G02F-001/1345; G09F-009/00

ABSTRACT

PROBLEM TO BE SOLVED: To provide a liquid crystal display module in which the mounting position of a LCD panel is changed to **accurately sense** the **temperature** of the LCD panel and the accuracy of temperature correction is improved.

SOLUTION: A flexible circuit board 13 is a one-face wiring board. The driving terminal 12 of the LCD panel 11 is connected to one face (A) of the board and the LCD driver 15 is mounted on the face (A) as a flip chip. Both terminals of a temperature correcting device 16 are connected to ITO (**indium** tin oxide) lands 171, 172 formed in a specified region on the substrate of the liquid crystal display panel 11 by ultrasonic soldering. The ITO lands 171, 172 are connected to the LCD driver 15 by the exclusive circuit patterns 18 respectively included in the arrangement of the driving terminal 12. The temperature correcting device 16 transmits signals to control the LCD driving voltage to the LCD driver 15 according to the temperature state of the LCD panel 11.

10530365

28/9/4 (Item 2 from file: 350) **Links**
Derwent WPIX

0008841751 *Drawing available*
WPI Acc no: 1998-388316/199833
XRPX Acc No: N1998-302725
Temperature sensor for liquid crystal portion of liquid crystal display - has thin layer of transparent conductive material which is spread across viewing area of display, and which can provide heat to warm up display when large voltage is applied across
Patent Assignee: HONEYWELL INC (HONE)
Inventor: CONOVER K; CORDOVA R K; HABING R D; HURT M S; JARAMILLO E A; PRAISWATER M R; SANDOVAL V T; WEINER G F; WOOD T J

Patent Family (3 patents, 76 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
WO 1998029779	A1	19980709	WO 1997US21350	A	19971118	199833	B
AU 199854514	A	19980731	AU 199854514	A	19971118	199849	E
US 6089751	A	20000718	US 1996774340	A	19961230	200037	E

Alerting Abstract WO A1
The sensor comprises a thin layer of transparent conductive material (10) disposed across the viewing area of the LCD, a precision current source which transmits a known current through the thin layer of conductive material, device to measure the voltage drop across the thin layer of transparent conductive material and device for calculating resistance of the thin layer of transparent conductive material and converting the resistance into temperature reading. The thin layer of transparent conductive material is made of **indium** tin oxide (ITO), which is selectively connected to a separate voltage source in order to heat the LCD. The LCD assembly further includes a number of **precision temperature sensors** positioned throughout the assembly. The sensor further includes measuring device which measures current through the thin layer of transparent conductive material while connected to separate voltage source.
ADVANTAGE - Accurate reading of liquid crystal temperature can be made.

Title Terms /Index Terms/Additional Words: TEMPERATURE; SENSE; LIQUID; CRYSTAL; PORTION; DISPLAY; THIN; LAYER; TRANSPARENT; CONDUCTING; MATERIAL; SPREAD; VIEW; AREA; CAN; HEAT; WARM; UP; VOLTAGE; APPLY

Claim:

1. A temperature sensor for a liquid crystal material, the temperature sensor being a part of a liquid crystal display (LCD) assembly, the temperature sensor comprising:
    - a thin layer of transparent conductive material disposed across a viewing area of the LCD assembly;
    - a precision current source which transmits a known current through the thin layer of conductive material;
    - means to measure a voltage drop across the thin layer of transparent conductive material; and
    - means to calculate a resistance of the thin layer of transparent conductive material based on the voltage drop

and convert the resistance to a temperature reading.

- **Claim 8.** A temperature sensor for a liquid crystal material, the temperature sensor being part of a liquid crystal display (LCD) assembly, the temperature sensor comprising:
- a thin layer of transparent conductive material disposed across a viewing area of the LCD assembly connected to a voltage source, said thin layer of transparent conductive material is for heating the LCD assembly;
- a precision current source which transmits a known current through the thin layer of conductive material;
- means to measure a voltage drop across the thin layer of the transparent conductive material; and
- means to calculate a resistance of the thin layer of transparent conductive material based on the voltage drop and convert the resistance to a temperature.